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EXAMINING THE GENERAL EFFICACY PERCEPTIONS OF CANDIDATE TEACHERS TOWARDS MEASUREMENT AND EVALUATION IN TERMS OF THEIR PROGRAMS

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Abstract:
The aim of this study is to determine the general competence perceptions aimed at assessment and evaluation of teacher candidates in terms of the program they participate in. The research is designed according to the survey model. The sample of the study consisted of 419 students selected through random sampling among the students having education in Kafkas University Faculty of Education and Karadeniz Technical University Fatih Faculty of Education in 2016-2017 academic period. In the study, "Assessment and Evaluation General Competence Perception Scale for Teacher Candidates" developed by Nartgün (2008) was used as the data collection tool. The scale has three dimensions. The dimensions of the scale have been named as "basic concepts", "assessment techniques" and "statistical analysis and reporting". As a result of the research, it has been revealed that there was a significant difference in the perception of competence to analyze and report statistics related to assessment and evaluation in terms of the program of the students. There was no significant difference in the competence perceptions of the students regarding assessment techniques and the basic concepts of assessment and evaluation in terms of the program they were in. While the Pre-school Teaching students had the highest average level of competency perceptions for the basic concepts of the scale, the students of Social Studies Teaching had the lowest average. Students in Turkish Teaching program had the highest average level of competency perceptions in terms of assessment techniques. On the other hand, the students in Classroom Teaching program had the lowest average.

Keywords: teacher candidate, assessment and evaluation, competence perception

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1. Introduction

Assessment and evaluation have an important place in education because the assessment and evaluation process can provide feedback for all elements of the program. "*Assessment is the process of gathering information to monitor progress and make educational decisions if necessary. An assessment may include a test, but, also includes methods such as observations, interviews, behaviours, monitoring, etc.*" (Ajayi, 2018). "*Evaluation is the consequence of ascribing meaning to facts, data, and information associated with that reality. The judgment is generally based on a definition of suitable criteria and on the identification of the quality models used as a reference*" (Alvino and Persico, 2009). Yıldırım and Karakoç Öztürk (2009) stated that the assessment and evaluation process enables the quality of education to be controlled. In addition, they have expressed that there is a need for the assessment and evaluation to determine how much the students achieved the determined goals during the education and training process, to identify learning deficiencies, to be able to follow developmental levels. Çelik and Arslan (2012) also expressed that universities have a great responsibility in terms of assessment and evaluation.

The most important factor that runs the assessment and evaluation process is undoubtedly the teacher. This is due to the fact that the teacher is the person who can apply this process based on the program, experience and knowledge. Teachers feeling sufficient during undergraduate program and their attitudes in this regard may significantly affect the assessment and evaluation process. However, in a study conducted by Çakan (2004) teachers did not find themselves sufficient in terms of assessment and evaluation. In a study carried out by Benzer and Eldem (2013), it has been found that the knowledge of teachers on the methods of assessment and evaluation and the usage level of these methods were low. Sönmez Ektem, Erben Keçici and Pileten (2016) have pointed out that teachers experience problems with process-oriented assessment and evaluation methods. In the study that Yıldırım and Karakoç Öztürk (2009)] conducted, they have stated that it would be difficult to fill out each of the observation and evaluation forms about the basic language skills and other measuring instruments for each student in the program and evaluation of performance assignments especially in crowded classrooms. In the research conducted by Gelbal and Kelecioğlu (2007), it has been determined that teachers prefer the method of assessment and evaluation in which they consider themselves sufficient, half of the teachers in the study have had problems using the assessment methods and those who have problems with problem assessment often refer to the fact that classes are crowded, lack of time, and difficulty in preparing assessment tools. In a study conducted by Sekban and Köse (2017), it has been determined that teachers generally regard themselves as sufficient in the assessment and evaluation applications.

The interests, attitudes, opinions of students towards measurement and evaluation are quite important. Acar Güvendir and Özer Özkan (2016) determined the perceptions of candidate teachers towards measurement and evaluation course through

metaphors. In the research, the measurement and evaluation course was assessed as abstract, detailed and complex by a majority of candidate teachers.

The ability of teachers to use assessment tools effectively will definitely affect the assessment and evaluation process positively. For this reason, it is necessary to increase the interests, attitudes and awareness of teacher candidates regarding the use of assessment tools (Buldur and Tatar, 2009). In a study carried out by Çelik and Arslan (2012), it has been observed that the competency perceptions of the teacher candidates, not having enough assessment and evaluation courses during undergraduate program were low. Therefore, teacher candidates having awareness on the assessment and evaluation process, having a positive attitude towards the assessment and evaluation process and being sufficient in terms of practical and theoretical knowledge of the assessment and evaluation process at undergraduate level are essential.

Various studies related to the assessment and evaluation have been made in the literature. When some of these studies are examined it is seen that the program variable is effective on the opinions, attitudes, self-efficacy and perceptions of the teacher candidates and teachers in various programs (Yıldırım and Karakoç Öztürk, 2009; Çelik and Arslan, 2012; Çakan, 2004; Benzer and Eldem, 2013; Sönmez Ektem, Erben Keçici and Pileten, 2016; Gelbal and Kelecioğlu, 2007; Sekban and Köse, 2017; Acar Güvendir and Özer Özkan, 2016; Gök and Erdoğan, 2009; Oguzor and Opara, 2011; Yaman and Karamustafaoğlu, 2011; Şahin and Uysal, 2013; Altun and Gelbal, 2014; Yiğit and Kırımlı, 2015; Büyüköztürk, Çokluk and Köklü, 2010; Çiçek, 2010). Thus, it is believed that the variable of the program that teacher candidates are in may affect their perceptions of competence in assessment and evaluation. According to Yaşar (2014), the attitudes of candidate teachers toward measurement and evaluation in education course were affected strongly by department and program type (evening class and normal class) variables. When the relevant literature was examined, no study on perceptions of competence of the students of Kafkas University and Karadeniz Technical University Fatih Education Faculty in assessment and evaluation was found. From this point of view, the problem is stated as "How are the perceptions of general competence of the students of Fatih Education Faculty of Kafkas University and Karadeniz Technical University in terms of assessment and evaluation?"

Research goal is to determine general competence perceptions of teacher candidates of measurement and evaluation in terms of various variables. For this purpose, answers of the following questions were sought.

- Do the competence perceptions of teacher candidates about basic concepts of assessment and evaluation change according to the program?
- Do the competence perceptions of teacher candidates about evaluation and assessment techniques change according to the program?
- Do the competence perceptions of the prospective teachers about analyzing and reporting statistics related to assessment and evaluation change according to the program they are in?

2. Materials and Methods

This study based on the general competence perceptions of teacher candidates for assessment and evaluation of various variables is in the survey model. "*Survey model is research approaches that aim to describe a situation in the past or present. The event, individual or object of the study is tried to be defined in their own conditions and as they are*" (Karasar, 2010, p. 77). The survey model was preferred as it presents "*a great amount of knowledge obtained from a sample consisting of as many individuals as possible*" (Büyüköztürk, Kılıççakmak, Akgün, Karadeniz, and Demirel, 2011).

The sample of the study consisted of 419 students selected through random sampling among the students having education in Kafkas University Faculty of Education and Karadeniz Technical University Fatih Education Faculty in 2016-2017 academic period. "*Random sampling is a technique used in the selection of a sample giving equal and mutually independent chance to all elements in a defined population to be selected as a sample. In other words, the probability of being selected for all elements is same and the selection of an element does not affect the selection of another element*" (Özen and Gül, 2007, p. 399). In Table 1, the percentage and the frequency distribution of the personal characteristics of the teacher candidates participating in the survey are given.

Table 1: Information of the participators

Variable		**N**	**%**
University	Kafkas University	203	48.4
	Karadeniz Technical University	216	51.6
Program	Classroom Teaching	105	25.1
	Science Teaching	104	24.8
	Turkish Teaching	73	17.4
	Social Sciences Teaching	71	16.9
	Pre-School Teaching	66	15.8
	Total	419	100

According to Table 1, 419 candidate teachers from classroom teaching, science teaching, Turkish teaching, social sciences teaching and preschool teaching programs participated in the study. The classroom teachers teach basic mathematics and science and literacy in the following stage after preschool period.

1.1 The Development of Data Gathering Tools

The data of the study were collected using the "General Survey of Perceptions and Assessment for Teacher Candidates" developed by Nartgün (2008), a Likert type attitude scale, in order to determine the extent to which teacher candidates see themselves qualified in terms of their assessment and evaluation competencies. The scale consists of three sub-dimensions. There are a total of 24 items; as 6 (about measurement, evaluation, variable, scale, validity, reliability) in the first dimension, 9 (about multiple choice questions, short-answer questions, matching type questions, true false type questions, open-ended questions, performance tasks, portfolio, measuring

non-cognitive and other supplementary measurement techniques) in the second dimension and 9 (about item analysis, frequency distribution, central distribution criterion, normal distribution criterion, relation criterion, predictive statistics, different approaches of transforming scores into grades and reporting) items in the third dimension.

The dimensions of the scale have been named as "basic concepts", "assessment techniques" and "statistical analysis and reporting". The Cronbach Alpha reliability coefficient of the entire scale was found to be .84. It was found that the Cronbach Alpha reliability coefficient for the "basic concepts" dimension of the scale was .79, Cronbach Alpha reliability coefficient for the dimension of "assessment techniques" was .77 and the Cronbach Alpha reliability coefficient for the dimension of "statistical analysis and reporting" was .87. Test-retest reliability of the scale was found to be 0.91. As a result of the reliability analysis conducted in this study, Cronbach Alpha reliability coefficients for the whole scale and subscales were found to be .91, .82, .82 and .88, respectively. Each item of the scale is scored between 5 (I am very qualified) and 1 (I am very unqualified). The total score to be obtained from the scale ranges from 24 to 120. The minimum and maximum points that can be taken for each dimension are as follows; 6-30 in the first dimension, 9-45 in the second dimension and 9-45 in the third dimension.

1.2 Analyzing of Data

The data were collected from teacher candidates having education in Kafkas University Faculty of Education and Karadeniz Technical University Fatih Education Faculty and taking the course of "Assessment and Evaluation". Data were analyzed by means of the SPSS 15 program. Missing and incorrectly filled scales were excluded from the scope of the research.

Predictive statistical methods were used for data analysis. Kolmogorov-Smirnov test, which is used in normality examination, has been used in order to determine whether the research data distributed normally. Finding the p value calculated as a result of Kolmogorov-Smirnov test larger than .05 was interpreted as the scores showed normal distribution at significance level. Therefore, independent sample T-test and ANOVA from parametrical tests were applied.

2. Findings

2.1. Do the competence perceptions of teacher candidates about basic concepts of assessment and evaluation change according to the program they participate in?

Single-way analysis of variance has been used to determine whether there is a difference among the participants' perceptions of competence about the basic concepts related to assessment and evaluation according to the program that participants are in.

Table 2: Numerical distributions of participants according to the program that they are in, arithmetic averages and standard deviations of competency perceptions scores for basic concepts related to assessment and evaluation

	N	$\overline{X}$	**SD**
Pre-School Teaching	66	31.42	7.18
Science Teaching	104	29.26	5.42
Turkish Teaching	73	29.05	6.59
Classroom Teaching	105	27.72	6.54
Social Sciences Teaching	71	23.54	6.41

When the Table 2 is examined, the students in the Pre-School Teacher Program have the highest average. The students in the Classroom Teaching and Social Studies Teaching program have the lowest average. The averages of the students in Science Teaching and Turkish Language Teaching Programs are close to each other.

One-way analysis of variance has been used to determine whether there is a significant difference in the participants' perceptions of competence about the basic concepts related to assessment and evaluation according to the program that the participants are in and the results have been given in Table 3.

Table 3: The results of variance analysis regarding the difference among basic concepts related to assessment and evaluation of participants according to the program that they are in

	Sum of the squares	**df**	**Average of the squares**	**F**	**p**
Intergroup	40,543	4	10,136	,593	,668
In-group	7077,595	414	17,096		
Total	7118,138	418			

As seen in Table 3, the variance value related to the competency perception scores for basic concepts in terms of assessment and evaluation according to the program of the participants was found to be F =.593 and p> 0.05 was not found significant at the significance level. This finding suggests that there is no significant difference in competence perceptions of the participants regarding basic concepts related to assessment and evaluation according to the programs they are in.

2.2. Do the qualification perceptions of teacher candidates regarding assessment techniques change according to the program they are in?

One-way analysis of variance was used to determine whether there was a difference among the participants' perceptions of competence about the assessment techniques according to the program that the participants were.

Table 4: Numerical distributions of participants according to the program that they are in, arithmetic mean and standard deviations of competence perceptions scores for assessment techniques

	N	$\overline{X}$	SD
Pre-School Teaching	66	31.56	4.82
Science Teaching	104	31.54	4.86
Turkish Teaching	73	32.86	6.11
Classroom Teaching	105	30.80	5.03
Social Sciences Teaching	71	32.16	5.13

When the Table 4 is examined, the students in the Turkish Teaching Program have the highest average. The students in the Classroom Teaching program have the lowest average. The averages of the students in the Pre-school Teaching and Science Teaching Programs are close to each other.

One-way analysis of variance was used to determine whether there was a significant difference in the participants' perceptions of competence about the assessment techniques according to the program that participants were in and the results were given in Table 5.

Table 5: The results of variance analysis regarding the difference among perceptions of competence about the assessment techniques of participants according to the program that they are in

	Sum of the squares	df	Average of the squares	F	p
Intergroup	40.543	4	10.136	.593	.668
In-group	7077.595	414	17.096		
Total	7118.138	418			

As seen in Table 5, the variance value regarding the competency perception scores related to the assessment techniques according to the program of the participants was found to be F=1.890 and p> 0.05 was not found significant at the significance level. This finding suggests that there is no difference among the competence perception scores of the participants regarding the assessment techniques according to the program they are in.

2.3. Do the competence perceptions of the prospective teachers about analyzing and reporting statistics related to assessment and evaluation change according to the program they are in?

One-way analysis of variance was used to determine whether there was a difference among the participants' perceptions of competence about analyzing and reporting statistical data related to assessment and evaluation according to the program that the participants were.

Table 6: Numerical distributions of participants according to the program that they are in, arithmetic mean and standard deviations of competence perceptions scores for analyzing and reporting statistics related to assessment and evaluation

	N	$\overline{X}$	SD
Pre-School Teaching	66	27.00	6.26
Science Teaching	104	29.44	6.08
Turkish Teaching	73	28.42	7.55
Classroom Teaching	105	24.36	6.42
Social Sciences Teaching	71	28.33	6.82

When Table 6 is examined, the students in the Science Teaching Program have the highest average. The students in the Classroom Teaching program have the lowest average. The averages of the students in the Turkish Teaching and Social Studies Teaching Programs are close to each other.

One-way analysis of variance was used to determine whether there was a significant difference in the participants' perceptions of competence about analyzing and reporting statistics related to assessment and evaluation according to the program that the participants were in and the results were given in Table 7.

Table 7: The results of variance analysis regarding the difference among analyzing and reporting statistics related to assessment and evaluation of participants according to the program that they are in

	Sum of the squares	df	Average of the squares	F	p
Intergroup	1552.447	4	388.112	8.907	.000
In-group	18039.624	414	43.574		
Total	19592.072	418			

As seen in Table 7, the variance value related to competence perception scores for analyzing and reporting statistics related to assessment and evaluation according to the participants' program, was found to be $F = 8.907$ and significance level was $p < 0.05$. This finding suggests that there is a difference among participants in terms of their perception of competence scores to analyze and report statistics related to assessment and evaluation according to the program they are in. The Tukey test was conducted to find out which of the program students cause the difference.

Table 8: Tukey test results regarding competence perceptions scores for analyzing and reporting statistics related to assessment and evaluation in accordance with the program that participants' are in

(I) Program	(J) Program	Difference Between Averages (I-J)	p
Pre-School Teaching	Science Teaching	-2.44231	.131
	Turkish Teaching	-1.42466	.709
	Classroom Teaching	2.63810	.083
	Social Sciences Teaching	-1.33803	.760
Science Teaching	Pre-School Teaching	-2.44231	.131
	Turkish Teaching	1.01765	.851
	Classroom Teaching	5.08040*	.000

	Social Sciences Teaching	1.10428	.813
Turkish Teaching	Pre-School Teaching	1.42466	.709
	Science Teaching	-1.01765	.851
	Classroom Teaching	4.06275*	.001
	Social Sciences Teaching	.08663	1.000
Classroom Teaching	Pre-School Teaching	-2.63810	.083
	Science Teaching	-5.08040*	.000
	Turkish Teaching	-4.06275*	.001
	Social Sciences Teaching	-3.97612*	.001
Social Sciences Teaching	Pre-School Teaching	1.33803	.760
	Science Teaching	-1.10428	.813
	Turkish Teaching	-.08663	1.000
	Classroom Teaching	3.97612*	.001

When Table 8 is examined, the differences among the competence perception score averages of the students in the Classroom Teaching Program and in the Science Teaching, Turkish Language Teaching and Social Studies Teaching Programs, for analyzing and reporting the statistics related to the assessment and evaluation has been found significant. The competence perceptions of students in the Classroom Teaching Program are lower than those of the students in Science Teaching, Turkish Language Teaching and Social Studies Teaching Programs.

4. Conclusion and Discussion

The aim of this study is to determine the general competence perceptions aimed at assessment and evaluation of teacher candidates in terms of the program they are in. Based on this aim, three research questions have been determined. Predictive statistical methods were used in the study.

In the study, first, one-way analysis of variance was applied to find the answer to the question "Do the competence perceptions of teacher candidates about basic concepts of assessment and evaluation change according to the program they are in?" As a result of the one-way ANOVA test, there was no significant difference in the competence perceptions of the students regarding the basic concepts of assessment and evaluation in terms of the program they were in. In the studies conducted, it was indicated that the perception level of the teacher candidates did not change according to the program variable (Yaman and Karamustafaoğlu, 2011; Yaralı, 2017). This result of the study is consistent with the relevant literature. While the Pre-school Teaching students have the highest average level of competency perceptions for the basic concepts of the scale, the students of Social Studies Teaching have the lowest average. The reason why Preschool Teaching students got the highest average score can be statistics course they take in addition to measurement and evaluation course in their program. When the sources of the statistics course are examined, it is seen that the basic concepts of measurement and evaluation are included in the content of the course (Büyüköztürk, Çokluk and Köklü, 2010; Çiçek, 2010; Güler, 2012). Karaduman and

Yanpar (2011) have determined that the teacher candidates, who continue their education in Science and Technology Teaching and Turkish Language Teaching programs, regard themselves sufficient about the basic concepts of assessment and evaluation. In this study, it has been found that the averages of the students in Science Teaching and Turkish Language Teaching Programs are close to each other. In addition their general competency perception scores are higher compared to the students in Classroom Teaching and Social Studies Teaching programs. In a study conducted by Sabancı and Yazıcı (2017), it has been determined that students of Classroom Teaching and Social Studies Teaching Programs regard themselves as "competent" in the dimension of "basic concepts" from the general competency assessment and evaluation perception scale.

One-way variance analysis test was applied to find the answer to the second question "Do the qualification perceptions of teacher candidates about assessment techniques change according to the program?" and as a result there was no significant difference regarding the competence perceptions for assessment and evaluation according to the program that the students were in. In the study conducted by Erdoğdu and Kurt (2012), significant differences were found among the scores of subscale of competence perception assessment technique in the comparison of assessment and evaluation competency perceptions according to the teaching area.

Students being in Turkish Teaching program have the highest average level of competency perceptions in terms of assessment techniques. On the other hand, the students in Classroom Teaching program have the lowest average. However, Sabancı and Yazıcı (2017) have noted that students in Classroom Teaching Program have higher perceptions of competence in terms of assessment techniques. Erdoğdu and Kurt (2012) determined that the assessment techniques competency perceptions of the classroom teachers were higher than those of the branch teachers. In their study, Daniel and King (1998) have concluded that teachers did not feel competent about the techniques of assessment.

Lastly, one-way variance analysis was applied to find the answer to the question "Do the competence perceptions of the prospective teachers about analyzing and reporting statistics related to assessment and evaluation change according to the program they are in?" As a result of one-way variance analysis, there was a significant difference in the perception of competence to analyze and report statistics related to assessment and evaluation in terms of the program they were in. The Tukey test was conducted to find out which of the program students cause the difference and the differences among the competence perception score averages of the students in Classroom Teaching Program and in Science Teaching, Turkish Language Teaching and Social Studies Teaching Programs, for analyzing and reporting the statistics related to the assessment and evaluation were found to be significant. In the study of Yeşilyurt (2012), a significant difference according to the program variable of the teacher candidates regarding the competencies in the dimension of the statistical analysis and reporting has been revealed. Pektaş (2010) have expressed that perceptions of teacher

candidates in terms of assessment and evaluation competence showed significant differences in terms of field variables seen in all subscales.

In this study it has been determined that the efficacy perceptions of the students in Classroom Teaching program towards statistical analysis and reporting are lower than the students in Science Teaching, Turkish Teaching and Social Sciences Teaching programs. The reason for that might derive from the instructor of the course. In education faculties, the institutions training teachers in Turkey, a package program is applied. It is aimed to provide students the same courses in all faculties. However, the basic determinant on the instruction of the courses and student achievement are the instructors and the way of instructing. Hence, the reason for that the efficacy perceptions of the students towards statistical analysis and reporting in Classroom Teaching program are lower in comparison with the students in Science Teaching, Turkish Teaching and Social Sciences Teaching programs can derive from the instructor. According to Arslantas (2011), instructors working in the faculty of education are insufficient in measurement and evaluation. In addition, it might be caused by individual inefficacy of classroom candidate teachers. In a study conducted by Gök and Erdoğan (2009), it has been revealed that the students of the classroom teaching generally do not use the multiple evaluation methods projected by the program in Turkish lessons. It has also been revealed in the same study that more than half of the students in classroom teaching experience difficulties in applying assessment and evaluation methods. In the study of Karaduman and Yanpar (2011), general competence perceptions of assessment and evaluation were found to present a significant difference according to the program variable. Noting that it has not been at a sufficient level, it has been pointed out that the competence perception averages of the teacher candidates, who continue Science and Technology Teaching and Classroom Teaching programs, were higher than the other teacher candidates.

5. Recommendations

In the study, no significant difference between the efficacy perceptions towards basic concepts of measurement and evaluation and measurement techniques was found in terms of their programs. However, some supplementary courses about measurement evaluation and statistics can be added to all programs when it is taken into consideration that the students of preschool teaching program have the highest and the students of social sciences teaching program have the lowest mean in the efficacy perception level towards basic concepts, and the students of Turkish teaching program have the highest mean and the students of classroom teaching have the lowest mean in the efficacy perception level towards measurement techniques. The general efficacy means of Classroom Teaching students in the dimension of efficacy perceptions towards measurement techniques and efficacy towards statistical analysis and reporting are lower than the students of other programs in the study. It is remarkable that the classroom teaching students have low means in both dimensions. Therefore, interviews

can be made in order to determine the reasons of low efficacy perceptions of Classroom Teaching students in measurement techniques and statistical analysis and reporting subjects.

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